

CLAIMS

What is claimed is:

- 1 1. A method comprising:
2 receiving a code segment having a plurality of instructions, the code segment having an
3 outer scope and a number of inner scopes, wherein the plurality of instructions comprise a
4 number of pointers, wherein at least one of the number of pointers is restricted; and
5 determining, within one of the number of inner scopes, whether at least two pointers of
6 the number of pointers are aliases.
- 1 2. The method of claim 1, comprising determining a base pointer for each pointer of
2 the number of pointers.
- 1 3. The method of claim 2, wherein the determining a base pointer for each pointer of
2 the number of pointers comprises:
3 grouping pointers together upon determining that the pointers are copied to a
4 pointer that is not a restricted pointer.
- 1 4. The method of claim 3, wherein there is no grouping of pointers when the pointers
2 have distinct base pointers.
- 1 5. The method of claim 3, comprising for each instruction of the plurality of
2 instructions that accesses a pointer, determining which at least one restricted pointer is
3 within the scope of the pointer when the pointer is accessed.
- 1 6. The method of claim 4, wherein the determining, within one of the number of
2 inner scopes, whether at least two pointers of the number of pointers are aliases is based
3 on the base pointer for each of the number of pointers.

1 7. The method of claim 3, wherein the determining, within one of the number of
2 inner scopes, whether at least two pointers of the number of pointers are aliases is based
3 on, for each instruction of the plurality of instructions that accesses the pointer, which at
4 least one restricted pointer is within the scope of the pointer, when the pointer is accessed.

1 8. A method comprising:
2 receiving a code segment having a plurality of instructions, wherein the plurality
3 of instructions comprise a number of pointers, wherein at least one of the number of
4 pointers is restricted, and wherein the at least one restricted pointer is in-scope or out-of-
5 scope; and
6 determining whether at least two pointers of the number of pointers are aliases
7 when each pointer of the at least two pointers is out-of-scope relative to the other pointers
8 of the at least two pointers.

1 9. The method of claim 8 comprising determining a base pointer for each pointer of
2 the number of pointers.

1 10. The method of claim 9, comprising determining, for each pointer of the number of
2 pointers, whether each at least one restricted pointer is in-scope when the pointer of the
3 number of pointers is accessed.

1 11. The method of claim 10 wherein the determining whether at least two pointers of
2 the number of pointers are aliases is based on determining a base pointer for each pointer
3 of the number of pointers.

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1 12. The method of claim 10 wherein the determining whether at least two pointers of
2 the number of pointers are aliases is based on determining a base pointer for each pointer
3 of the number of pointers, and on determining for each pointer of the number of pointers
4 whether each at least one restricted pointer is in-scope when the pointer is accessed.

1 13. A system comprising:

2 a memory unit to include a code segment having a plurality of instructions, the
3 code segment having an outer scope and a number of inner scopes, wherein the plurality
4 of instructions comprise a number of pointers, wherein at least one of the number of
5 pointers is restricted; and

6 a compiler unit coupled to the memory, the compiler unit to determine within one
7 of the number of inner scopes, whether at least two pointers of the number of pointers are
8 aliases.

1 14. The system of claim 13, wherein the compiler unit is to determine a base pointer
2 for each pointer of the number of pointers.

1 15. The system of claim 14, wherein the compiler unit is to determine, for each
2 instruction of the plurality of instructions that accesses a pointer, which at least one
3 restricted pointer is within the scope of the pointer when the pointer is accessed.

1 16. The system of claim 15, wherein the compiler unit is to determine, within one of
2 the number of inner scopes, whether at least two pointers of the number of pointers are
3 aliases based on, for each instruction of the plurality of instructions that accesses a
4 pointer, which of the restricted pointers is within the scope of the pointer when the pointer
5 is accessed.

1 17. A machine-readable medium that provides instructions, which when executed by a
2 machine, cause said machine to perform operations comprising:
3 receiving a code segment having a plurality of instructions, the code segment having an
4 outer scope and a number of inner scopes, wherein the plurality of instructions comprise a
5 number of pointers, wherein at least one of the number of pointers is restricted; and
6 determining, within one of the number of inner scopes, whether at least two pointers of
7 the number of pointers are aliases.

1 18. The machine-readable medium of claim 17, comprising determining a base
2 pointer for each pointer of the number of pointers.

1 19. The machine-readable medium of claim 18, comprising for each instruction of the
2 plurality of instructions that accesses a pointer, determining which at least one restricted
3 pointer is within the scope of the pointer when the pointer is accessed.

1 20. The machine-readable medium of claim 19, wherein the determining, within one
2 of the number of inner scopes, whether at least two pointers of the number of pointers are
3 aliases is based on the base pointer for each of the number of pointers.

1 21. The machine-readable medium of claim 19, wherein the determining, within one
2 of the number of inner scopes, whether at least two pointers of the number of pointers are
3 aliases is based on, for each instruction of the plurality of instructions that accesses the
4 pointer, which at least one restricted pointer is within the scope of the pointer, when the
5 pointer is accessed.

1 22. A machine-readable medium that provides instructions, which when executed by a
2 machine, cause said machine to perform operations comprising:

3 receiving a code segment having a plurality of instructions, wherein the plurality
4 of instructions comprise a number of pointers, wherein at least one of the number of
5 pointers is restricted, and wherein the at least one restricted pointer is in-scope or out-of-
6 scope; and

7 determining whether at least two pointers of the number of pointers are aliases
8 when each pointer of the at least two pointers is out-of-scope relative to other pointers of
9 the at least two pointers.

1 23. The machine-readable medium of claim 22, comprising determining a base
2 pointer for each pointer of the number of pointers.

1 24. The machine-readable medium of claim 23, comprising determining, for each
2 pointer of the number of pointers, whether each at least one restricted pointer is in-scope
3 when the pointer of the number of pointers is accessed.

1 25. The machine-readable medium of claim 24, wherein the determining, within one
2 of the number of inner scopes, whether at least two pointers of the number of pointers are
3 aliases is based on the base pointer for each of the number of pointers.

1 26. The machine-readable medium of claim 24, wherein the determining whether at
2 least two pointers of the number of pointers are aliases is based on determining a base
3 pointer for each pointer of the number of pointers, and on determining for each pointer of
4 the number of pointers whether each at least one restricted pointer is in-scope when the
5 pointer is accessed.